AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the

application:

LISTING OF CLAIMS:

1.   (currently amended): Method of processing IP packets at layer three level in a

telecommunication equipment, the equipment comprising a first box containing layer 4

protocols, and a second box containing hardware interfaces and layer 2 drivers, the method

comprising the following steps in the following order, which are performed by a first termination

block:

in the incoming direction:

validating IP ~~packet~~ packets by performing checks~~validation~~,

managing options field by interpreting all the options that said first termination

block understands and preserving unaltered all other options ~~options field management~~,

filtering,

deciding first next layer ~~decision~~ and forwarding;

in the outgoing direction:

managing redirect by checking if the packet that is going to be sent satisfies the

following conditions:

the IP packet has been received from a same interface over which it is

going out,

the source address belongs to a sub-network of a next-hop,

there is no source route option~~redirect management~~,

managing TTL by considering a valid packet any IP packet addressed to the

equipment and with TTL equal to 0~~TTL management~~,

managing source address ~~management~~,

managing options field by interpreting all the options that said first termination

block understands and preserving unaltered all other options~~options field management~~,

~~packet fragmentation~~fragmenting packets when the packet to be routed has a size

greater than a Maximum Transmission Unit.

2.   (currently amended): Method according to claim 1, wherein, in case of IP packets

originated from or destined to the equipment, said method further comprising the following steps

in the following order, which are performed by a second termination block~~:~~

in the incoming direction, after the first next layer decision and forwarding step:

validating the IP ~~packet~~ packets~~validation~~ by performing checks,

reassembling ~~packet reassembly~~incoming fragmented packets,

managing options field by ~~management~~interpreting all options that said second

termination block understands,

deciding second next layer ~~decision and forwarding~~by stripping the header and

forwarding the payload to the upper client layers using the protocol as selector;

in the outgoing direction, before the ~~redirect management~~step of managing redirect:

multiplexing ~~of~~IP payloads coming from different upper layer protocols,

managing options field ~~management~~, and

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~~generation of~~ generating IP ~~header~~ headers.

3.   (currently amended): Method according to claim 2, wherein, in case of IP packets to be emitted by the equipment, the following steps are performed by a connection block:

in the incoming direction, after the step of deciding first next layer ~~decision~~ and forwarding ~~step~~:

performing a first lookup step ~~is performed~~ in order to decide the destination of the incoming packet,

in the outgoing direction, before the step of managing redirect ~~management step~~ and after the step of ~~generation of~~ generating the IP header ~~step~~:

performing a second lookup step ~~is performed~~ in order to decide the destination of the outgoing packet.

4.   (currently amended): Method according to claim 3, wherein, in case of IP in IP tunneling, in the incoming direction, after the step of deciding first next layer and forwarding and before the first lookup step, ~~said method further comprises~~ comprises the following steps, which are performed by a tunnel termination block in the following order:

~~in the incoming direction, after the first next layer decision and forwarding step and before the lookup step:~~

~~determine~~ determining which headers must be stripped,

~~strip~~ stripping the tunnel headers,

~~process~~ processing the TTL of the stripped headers with the exception of the first

one already processed in a preceding step,

~~process~~ processing the CRC of all the stripped headers with the exception of the

first one already processed in a preceding step,

and the following steps are performed by the first termination block:

validating the IP ~~packet validation~~ packets by performing checks,

managing options field ~~management~~ by interpreting all the options that said first

termination block understands and preserving unaltered all the other options,

filtering,

deciding third next layer ~~decision~~ and forwarding;

in the outgoing direction, after the second lookup step and before the step of managing

redirect, it further comprises the following steps, which are performed by the first termination

block in the following order ~~management step~~:

managing redirect ~~management~~ by checking if the packet that is going to be sent

satisfies the following conditions:

the IP packet has been received from a same interface over which the IP packet is

going out,

the source address belongs to a sub-network of a next-hop,

there is no source route option,

managing TTL by considering a valid packet any IP packet addressed to the

equipment and with TTL equal to 0 ~~management~~,

managing source address management,

managing options field by interpreting all the options that said first termination

block understands and preserving unaltered all other optionsmanagement,

fragmenting said packet fragmentation,when the packet to be routed has a size

greater than said Maximum Transmission Unit;

and the following steps performed by said tunnel termination block:

determine determining which tunnels must be created,

validate validating IP address of the incoming packet versus tunnel addresses,

make making address translation from client receiver to tunnel endpoint address

and vice versa,

insertion inserting of external header,

process processing the external header fields forcing the fragmentation flag to "do

not fragment" value,

process processing the external header options field,

calculate calculating external header checksum,

make making path MTU recovery,

in case errors occurred in transmission, send sending ICMP messages to the

originator of the messages being routed in the tunnel.

5.   (currently amended): Method according to claim 3, further comprising the

following steps which are performed by a MPLS box:

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in the incoming direction, before the first IP packet validation step:

input processing MPLS ~~packet input processing~~packets,

in the outgoing direction, after the second lookup step:

output processing an MPLS packet ~~output processing~~.

6.   (currently amended): Method according to claim 4, further comprising the following steps which are performed by a MPLS box:

in the incoming direction, before the first IP packet validation step:

input processing MPLS ~~packet input processing~~packets,

in the outgoing direction, after the second lookup step:

output processing an MPLS packet ~~output processing~~.

7.   (currently amended): Method of processing MPLS packets at layer three level in a telecommunication equipment, the equipment comprising a first box containing layer 4 protocols, and a second box containing hardware interfaces and layer 2 drivers, the method comprising the following steps in the following order, which are performed by a MPLS box:

in the incoming direction:

~~count~~counting received frames and number of octets through an incoming termination block of said MPLS box,

~~validate~~validating MPLS packets against label range through said incoming termination block ,

determining an interface identification through said incoming termination

block,~~determine the interface identification~~,

~~count~~ counting ~~of~~ received packets and number of octets through a first incoming

adaptation block of said MPLS box,

~~strip~~ stripping ~~of the~~ an external MPLS header retrieving ~~the~~ stripped information

through said first incoming adaptation block,

~~lookup~~ looking up for ~~the~~ a destination of ~~the~~ an incoming MPLS packet through

a connection block of said MPLS box,

deciding next layer ~~decision~~ based at least on End_of_Stack flag through a

termination block of said MPLS box,

forwarding to the next layer through said termination block ~~forwarding~~,

managing TTL through a second incoming adaptation block and through an

adaptation block of said MPLS box ~~management~~,

if next-hop is not the equipment itself, determining PHB through said second

incoming adaptation block and through said adaptation block ~~determination~~;

in the outgoing direction:

~~extract~~ extracting TTL from a received outgoing client packet through said

adaptation block,

~~pass~~ passing on the received outgoing client packet as a stripped MPLS packet

together with FEC, PHB, TTL through said adaptation block,

~~generate~~ generating an End_of_Stack bit through said termination block,

~~pass~~ passing on the stripped MPLS packet together with FEC, PHB, TTL and

End_of_Stack through said termination block,

~~lookup~~ looking up for the destination of outgoing client packets with FEC

originated by the equipment through said connection block,

managing TTL through an outgoing adaptation block of said MPLS

box;~~management~~

~~creation of~~ creating a new MPLS header and setting EXP bits according to said

PHB through said outgoing adaptation block,

~~count~~ counting of transmitted packets and number of octets through said outgoing

adaptation block,

~~pass~~ performing MPLS fragmentation and passing on MPLS packet, PHB, and

Next Hop through an outgoing termination block of said MPLS box.

8.   (currently amended): Method according to claim 7, wherein, in case of multiple

MPLS encapsulation,

in the incoming direction, the processing steps are repeated on stripped MPLS packet;

in the outgoing direction, all the ~~necessary~~ MPLS labels required for multiple MPLS

encapsulation are pushed during one MPLS header creation step.

9.   (original): Method according to claim 7, wherein, in case of penultimate hop,

in the incoming direction, the client packet is forwarded to the lower layer is stripped and

emitted.

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10.   (original): Method according to claim 8, wherein, in case of penultimate hop,

in the incoming direction, the client packet is forwarded to the lower layer is stripped and

emitted.

11.   (original): Method according to claim 7, wherein the client packet is an IP packet.

12.   (original): Method according to claim 7, wherein the client packet is an Ethernet

frame.

13.   (original): Telecommunication equipment comprising means adapted to carry out

the method according to claim 1.

14.   (original): Computer program product comprising computer program code means

adapted to perform all the steps of the method according to claim 1 when said program is run on

a computer.

15.   (original): Computer readable medium having a program recorded thereon, said

computer readable medium comprising computer program code means adapted to perform all the

steps of the method according to claim 1 when said program is run on a computer.